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An evidence-based framework for the implementation of digital health technologies in primary healthcare: what, where and for whom?

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Chapter 5 – Improving the primary care consultation through digital medical interview assistant systems-the cases of diabetes and depression: A narrative review.

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ABSTRACT

Background: Digital medical interview assistant (DMIA, also known as computer-assisted history taking (CAHT)) systems have the potential to improve the quality of care and the medical consultation by exploring a larger number of aspects related to the patient without time constraints, and therefore acquiring more and better quality information, prior to the face-to-face consultation. The consultation in primary care (PC) is the broadest in terms of the amount of topics to be covered and, at the same time, the shortest in term of time spent with the patient.

Objectives: To explore how DMIA systems may be used specifically in the context of PC, to improve the consultations for diabetes and depression, as exemplars of chronic conditions.

Methods: A narrative review was conducted focusing on (1) the characteristics of the PC consultation in general and for diabetes and depression specifically, and on (2) the impact of DMIA/CAHT systems on the medical consultation. Through thematic analysis, we identified the characteristics of the PC consultation that a DMIA system would be able to improve. Based on the identified PC consultation tasks and the potential benefits of DMIA systems, we developed a sample questionnaire for diabetes and depression to illustrate how such a system may work.

Results/Discussion: A DMIA system, prior to the first consultation, could aid in the essential PC tasks of case finding/screening, diagnosing and, if needed, timely referral to specialists or urgent care. Similarly, for follow-up consultations, it could aid with the control/monitoring of these conditions, help check for additional health issues and for updating the PC provider about visits to other providers or further testing. Successfully implementing a DMIA system for these tasks would improve the quality of the data obtained, which means earlier diagnosis and treatment; would improve the use of face-to-face consultation time, streamlining the interaction and allowing the focus to be the patient's needs, which ultimately would lead to better health outcomes and patient satisfaction. However, for such a system to be successfully incorporated, there are important considerations to be taken into account, such as the language to be used and the challenges for implementing eHealth innovations in PC and healthcare in general.

Conclusions: Given the benefits explored here, we foresee that DMIA systems could have an important impact in the PC consultation for diabetes and depression and, potentially, for other chronic conditions. Earlier case finding and a more accurate diagnosis, due to more and better-quality data, paired with improved monitoring of disease progress, should improve the quality of care and keep the management of chronic conditions at the primary care level. A somewhat simple, easily scalable technology could go a long way to improve the health of the millions of people affected with chronic conditions, especially if working in conjunction with already established health technologies such as EMRs and CDSS.

INTRODUCTION

Digital medical interview assistant (DMIA, also known as computer-assisted history taking (CAHT)) systems are software programs that allow patients to provide their medical history electronically prior to the consultation, which can be done remotely, via a web-based portal or on-site in clinic, via tablets or kiosks, before clinical review [1]. DMIA systems have the potential to improve the quality of care and the medical consultation by exploring more patient-related aspects without time constraints, and therefore acquiring more and better quality information [2, 3].

Primary care (PC) is often considered a cornerstone of healthcare systems [4]. The stronger the country's primary care orientation is, the better the health outcomes they obtain (e.g. in terms of all-cause mortality, all-cause premature mortality, and cause-specific premature mortality for several conditions), regardless of the differences in health system characteristics, such as GDP per capita, total physicians per 1000 population and percentage of elderly people [5]. As such, one of PC's core functions involves diagnosing and treating chronic conditions [6]. Diabetes and depression, two very prevalent chronic conditions, form part of the majority of non-referred ambulatory visits to office-based physicians [6, 7]. The global prevalence of diabetes reached 8.5% in 2014, affecting 422 million people [8], while depression is the most common mental health disorder and affects more than 264 million people worldwide [9]. Both are multifactorial, chronic conditions that require frequent reassessment and readjustment for their management [10].

The alarming rise of chronic conditions are increasingly straining health systems worldwide [11], and PC has been widely proposed as one possible solution to tackle this issue [4, 5], as the characteristics of chronic conditions make PC the ideal level of care to manage and treat them. Here, we aim to explore how DMIA systems may be used specifically in the context of PC, to enhance the consultations for diabetes and depression, as exemplars for chronic conditions. In order to do this, we delineated the particular characteristics of, and the tasks to be performed at, the PC consultation that could be aided by a DMIA system. This helped identify the key topics a DMIA system should ask about before the PC consultations for these chronic conditions. In addition, we discuss its potential benefits for the PC consultation, as well as important considerations for the successful implementation of such a technology in the PC context.

METHODS

A narrative review of the literature [12] was conducted between June – August 2019 and focused on two topics:

1. Characteristics of the PC consultation in general (i.e., scope, structure, communication, time, knowledge and skills required), and on the PC medical consultation for diabetes and depression specifically: a Google search was performed using the terms "primary care consultation" for obtaining general information regarding the PC consultation from a variety of sources, including published work and grey literature. Additionally, a search through the Nanyang Technological University Library was performed using the same terms to locate textbooks

regarding the general PC consultation and for the consultation for diabetes and depression, specifically.

2. The impact of DMIA/CAHT on the medical consultation: searches in PubMed/MEDLINE were performed using the terms “computer-assisted history taking” and “automated history taking”.

A purposeful sample of articles was included based on relevance to building the results and discussion. Robust evidence regarding CAHT/DMIA and their impact on the medical consultation was limited, as most studies evaluating these systems focused on other aspects, such as acquiring dietary or family history to estimate risk for diabetes, studies evaluating computer-assisted data collection for specific populations or related to screening, studies evaluating the test-retest reliability of computer-based medical histories, or efforts to generally computerize medicine, just to give some examples [13-18]. Relevant insights that were most useful for our purposes come mainly from commentaries, perspective, and historical pieces [2, 3, 19], some of which analyzed or identified existing CAHT/DMIA software programs [1, 20, 21].

Thematic analysis of the extracted data from medical textbooks and literature, helped identified higher-order themes and the specific, recurrent elements [22] that PC consultations contain in relation to diabetes and depression. At the same time, we identified the specific areas where DMIA systems could improve the PC consultation for these conditions. By combining both sources of information, we mapped the areas of the PC consultation for diabetes and depression that might be improved by the use of DMIA systems. We did this for both the first presentation or consultation with the PC provider and the follow-up visits, as the needs and task performed at these consultations are different. The information is reported following the structure of a narrative-style literature review [12].

We additionally developed a box representing the main identified tasks a PC provider should perform at the initial (i.e. screening and diagnosing) and follow-up PC consultations (i.e. general and clinical monitoring, checking for additional health issues, coordinating); and we completed it with the questions that a DMIA system should ask in order to facilitate these tasks, specifically for potential diabetes and depression patients. The box also includes the corresponding improvements for these PC consultations.

RESULTS AND DISCUSSION

Advantages and disadvantages of digital medical interview assistant systems

No other medical consultation is as broad in terms of topics to be explored (medical/clinical, psychological, bio-social) [6, 10, 23], and limited in terms of time (mean consultation time of 5 minutes or less, [24] or around 9 minutes, with GPs feeling that a consultation of less than 10 minutes for PC was inadequate [25]), as the PC consultation. A DMIA system could improve PC consultations in several ways, based on the benefits related to the medical consultation, broadly conceptualized. Table 1 and the following paragraphs summarize potential benefits and disadvantages that DMIA systems may

bring forth for medical consultations in general, based on both theoretical work and on studies evaluating the capacities of these systems.

Table 1. Potential benefits and disadvantages of DMIA systems for the medical consultation. ^{a,b}

Potential benefits of DMIA systems	Potential disadvantages of DMIA systems
Collect history for health screening or comprehensive clinical consultation [1]	Technical – Poor programming/design may result in [21]: - Missing relevant information - Collection of irrelevant information - Erroneous information
Collect more complete, accurate and reliable information [1, 3, 19, 26]	
Potential to increase diagnostic certainty [3]	
Considerably shorten time spent on history-taking, dictation and documentation [1]	
Streamline office visit; allows for consultation to be focused on identified concerns/problems [3]	Human computer interaction-related issues: -Perceiving the computer interview as impersonal [1, 27] - Inability to detect non-verbal behaviour [19]
Promotes rapport, communication and decision-making [1, 2, 19]	
Can be integrated with EMR/EHR and online patient-diaries, improving access to data [1, 3, 19, 26]	
Enable triage prioritization and improves referral of patients [1]	Duplication of effort – provider attempts to confirm all responses [3]
Help prepare patient and provider for the consultation [3, 19]	Require patient’s familiarity with technology/computer literacy [1, 3, 19]
Collect more sensitive information [1]	Require technical supervision and maintenance [1, 19, 28]
	Require a variety of factors (legislative, organizational, physician-level factors) to allow the successful implementation of eHealth innovations [28, 29]

^a In comparison to face-to-face consultations

^b References [1, 2, 3, 19, 26] are perspective or commentary articles, theorizing about the capacities of DMIA systems; references [21, 25, 27, 28] are studies evaluating systems and presenting results.

First, it has the capacity to acquire a more comprehensive set of information than that attainable during a face-to-face consultation. This could provide greater insights into potential risk factors, and possibly, suggest a more accurate differential diagnosis, prior to seeing the patient [2, 3, 30]. Secondly, it allows for better use of face-to-face consultation time, as previous existing conditions and information about presenting complaint/s have already been identified before the patient enters the physician’s office [2, 3]. This allows for a more streamlined consultation, where time that would have been spent on history-taking is shifted to discussing management strategies, building rapport and focusing on the relationship with the patient.

Third, it improves data quality [2, 20, 21], which in turn improves the diagnosis, as the quality of the diagnostic process is significantly affected by the accuracy of the information made available to the

provider. Fourth, DMIA systems include more up to date information, including that available from tests and other healthcare providers, which helps maintain continuity of information across different providers [30].

Additionally, once a diagnosis has been made by the PC provider and subsequent consultations have been scheduled, DMIA systems can help flag specific aspects that need attention related to the ongoing management or treatment of the condition, and collect subsequent patient concerns prior to the follow-up consultation. As a result, the PC provider in follow-up consultations can focus on guiding the patient regarding self-management aspects and provide further education that might be needed [3]. Alternatively, the information in a DMIA system may flag the need for specialist visits or management from other team members (allied health professionals), in advance of seeing the patient, leading to earlier referrals or timely, urgent treatment, if needed [30].

However, there are also reported disadvantages of DMIA systems, which include possible technical issues, related to problems with programming or design, that may lead to missing or erroneous information [21]; potential problems with the fact that a patient is interacting with a computer, such as perceived impersonality of the medical-patient interaction or missing body language cues [1, 19, 27], although this last issue could be overcome by new facial and/or body movement recognition technologies, such as affective computing, where automated analysis of facial expressions can provide accurate depression diagnosis, for example [31]. Also, it has been described that some providers attempt to confirm all the answers, duplicating efforts [3]. Finally, DMIA systems, as with other technologies, require technical supervision and maintenance [1, 19, 28], which may result in additional resource spending.

PC consultation tasks for diabetes and depression: where could DMIA systems make a difference?

Prior to the initial consultation

Two important tasks of a PC provider in the first consultation with a new patient are to identify, by case finding or screening, and diagnose a health condition [10, 23, 32-34]. The key aspect to these tasks is information gathering. As such, a pre (first) consultation DMIA system can exhaustively explore and ask questions about the different areas related to screening and diagnosis of a chronic condition, prior to the first consultation, without particular time constraints.

Case finding/screening

Comprehensive case finding, along the lines of the bio-psycho-social model, should include a generic set of questions exploring general health-related aspects, as well as more targeted screening questions, depending on the answers provided in the general questions section. General aspects may refer to lifestyle and health behaviors (i.e. exercise, sleep duration, diet, general mood, alcohol/drug use, etc.), and social behavior e.g. family, work conditions, community aspects. Both of these sets can provide hints for high-risk factors and behaviors, including patient beliefs and perspective on the illness. Depending on the answers provided to the general screening questions, more targeted specific

screening questions could be presented for hypertension, obesity, cancer, and other chronic conditions risk-factors [35-37]. Answers from these could provide clinically relevant information for an accurate/earlier diagnosis (see Box below).

Diagnosing

Based on the responses from the case finding process, using branching logic, further questioning may dive deeper into specific risk factors to attempt a diagnosis. For example, for individuals at risk of diabetes, the system can ask questions related to possible prediabetes, and signs and symptoms (see Box) [35, 36]. This may include plasma glucose level test results, if available [34]. For depression, the systems could focus on possible depressive/mood disorder diagnosis questions or screening tests, such as the 2-key question approach (see Box) [37].

Urgent care/specialist referral

The PC provider, as the patient's first contact and care coordinator, should have the ability to decide whether the patient needs emergency care or urgent specialist referral [35-37]. Therefore, the PC provider, aided by some of the responses provided by the patient prior to the consultation, could identify severe/uncontrolled cases of chronic conditions, which require immediate and urgent attention. In his/her coordinating role, the PC provider might promptly refer the patient to a specialist or to a hospital, based on information provided and quick face-to-face interaction, if needed.

Prior to the follow-up consultation

Once a diagnosis has been reached, the PC provider and patient ideally established a plan of action to treat and manage the condition. Key tasks of a PC follow-up consultations include the control or monitoring of the condition [23, 35-37], including identifying the potential occurrence of related additional health issues [35, 36], as well as the coordination with relevant specialists regarding further work-up [10, 23]. A DMIA system can support these tasks by checking on the level of control and monitoring the progress of the condition. It can explore additional health problems that may have arisen as a consequence of the condition, and/or by adding additional useful information, such as information from other health providers and/or lab tests, prior to the patient-provider follow-up consultation. Also, this can be done remotely and, hence, more frequently than the face-to-face follow-up consultation.

Control/monitoring

A set of lifestyle/general questions (i.e. exercise, sleep duration, diet, etc.) will help check patient's compliance to lifestyle changes. For diabetes, these may evaluate changes in diet, exercise patterns, etc. (see Box). In the case of depression, the questions can relate to alcohol/drug use, sleeping patterns, situation at home/work, etc. (see Box).

The monitoring and control of chronic conditions highlight the importance of the patient becoming a partner in the management of their condition [36, 38]. Relatedly, the system could also evaluate

environmental and social conditions conducive to improved disease control. For example, in diabetes, a DMIA can explore accessibility to healthy food options at home/work, time available to exercise, etc. Regarding depression, cultural stigma regarding mental health and family support could be assessed [37].

After going through these sets of more general monitoring questions, the system can delve deeper into more clinically relevant questions, in order to monitor disease progression and check for medication adherence. It could ask questions about blood glucose levels (for diabetes), recurrent mood/depressed symptoms (for depression) and whether the patient has been taking medications properly.

Checking for additional health issues

In addition to the chronic condition, the patient could have other associated health problems. The patient may not be aware that these other problems may be connected to the underlying chronic condition. In such cases, the DMIA system may be able to check for this prior to the follow-up consultation. In diabetes, it may assess for micro or macrovascular complications e.g. kidney problems, peripheral vascular disease, foot ulcers, neuropathy, enteropathy, and ophthalmopathy [35, 36]. In depression, it can check for neurovegetative symptoms, difficulties concentrating, suicidal ideations, etc. [37, 39].

Coordination

As mentioned above, given the role of coordinator of the PC provider, a DMIA system should ask questions related to the patient seeing other healthcare professionals, which may provide relevant additional information for the PC provider. Often, when the patient is referred to specialists or other healthcare providers for additional treatment, tests, etc., the information is not always transferred back to the PC level [40]. Thus, these systems can check whether the consultations with other providers have been occurring, and if they have been successful. For diabetes, this may relate to visits to the endocrinologist, ophthalmologist, nephrologist, etc. [35, 36]; for depression, psychotherapist, and psychiatrists [32, 37, 39]. Additionally, the systems may check with the patients whether there have been laboratory or other tests performed, and the PC office could check with those external sites if the results have not made it back to the PC level.

Implications of incorporating DMIA systems into the PC consultation

We described the role a DMIA system could potentially play in managing consultations on diabetes and depression within the PC context. The anticipated benefits of incorporating this technology in the PC consultations for these chronic conditions should mirror those described in the literature: namely, a more comprehensive set of patient information, better use of face-to-face consultation time, better quality and more up to date data, more frequent interactions with the patient, etc.

All the information gathered outside of the face-to-face consultation means that the actual time in consultation is better spent. Conversation can be streamlined to address the needs of the patient (like building rapport, providing education or responding to concerns), and improve communication and

patient understanding, which ultimately leads to increased patient satisfaction [41]. Relatedly, better quality data prior to the consultation, and support for additional data coming from other levels of care or lab tests, allow for early detection of a chronic condition, earlier and enhanced treatment at the PC level, better monitoring, and early management of possible complications, all of which translates into better care. In addition, as the DMIA communicates with the patient before and in between consultations, it improves the continuity of care and it gives the patient the feeling of being better cared for, as communication with the provider via the DMIA system, occurs more frequently.

Additionally, DMIA systems could improve the treatment and management of chronic conditions, as seen with diabetes and depression, without too much additional effort once the system has been setup. As mentioned above, chronic condition management usually follows a pre-established pattern. Therefore, it would not be difficult to develop a rules-based system to check case finding/diagnosis and appropriate management strategies. Then, once developed, the system could be deployed and repeated throughout using the same branching logic and platform. Moreover, artificial intelligence could be leveraged and introduced into a DMIA system which will potentially improve questioning algorithms, language, etc.

Important implementation considerations

For such a system to work well, there are several considerations that need to be taken into account. As presented earlier, there are some disadvantages that need to be bypassed or considered when implementing DMIA systems. Some patients may not be able to read the materials in digital form or may not be digitally literate; about 10 percent of the population chooses not to do their histories on computers [3], although this figure may vary depending on how technologically acquainted people from different populations are. GPs sometimes try to confirm all the answers to the questions – duplicating the work of the computer – which obviously impacts efficiency [3], although as technology and program design improve, there should be more confidence from these physicians in the results obtained by these programs. Additionally, there may be patient data entry and potentially added work for the PC provider, as more issues might be highlighted and in need of attention. Moreover, bringing a DMIA into everyday clinical practice requires interdisciplinary collaboration with a team of specialists and PC physicians, patient advocates, computer scientists, big-data analytics and experience design [2].

Another consideration relates to the language to be used. The ideal DMIA system should provide a “human-like” interaction. For example, for a pre follow-up consultation, it should phrase the questions in such a way, that the patient feels as if they were continuing a previous conversation. Technologies today allow for human-like conversations in the form of chatbots (also known as machine conversation system, virtual agent, dialogue system, conversational user interface and chatterbot), where a computer program interacts with users using natural language precisely to simulate human conversation [42, 43]. As such, the system may ask: *“Have you been able to adequately manage the _____ (chronic condition) we discovered last week? Is there something you’d need extra help with?”*

Another essential consideration relates to the factors that influence the adoption of eHealth innovations in healthcare in general, and PC in particular. On the one hand, there are factors related to the adaptability, flexibility and cost of the technology to be implemented [28]. DMIA systems need to be sufficiently flexible and affordable so that they easily enter and adapt to different PC contexts and into already existing working practices and systems. On the other hand, the environment in which the technology will be implemented needs to be ready for such a transformation, and include supportive policies, incentives and leadership, and the appropriate resources for implementation [28, 29]. In addition, a PC provider's knowledge and experience with digital technologies needs to be taken into account, as well as their willingness to incorporate a new technology into their everyday practice [28, 29]. Only the proper alignment of these factors will enable a technology such as a DMIA system to be successfully implemented and, ultimately, improve care.

Finally, by transforming the PC consultation in the way we describe here, a DMIA system would standardize the consultation and follow-up of chronic conditions and improve clinical care. We foresee that, given the described benefits, it should become the norm and a regular practice accompanying the PC consultation, if implemented in the appropriate way, by addressing the challenges and factors mentioned above. Moreover, it can become part of a suite of digital health technologies, amplifying its impact. For instance, by directly connecting a DMIA to an electronic medical record (EMR) system and/or to a clinical decision support system (CDSS), it can have synergistic effects that may transform the way healthcare is provided in the future, such as providing rapid and remote access to care, improved triage, and more accurate diagnosis, just to name a few benefits. The answers provided to a DMIA system, which are automatically stored in a digital format, can populate whichever data fields needed for an automated CDSS, providing support across a wide variety of clinical fields and issues [2, 3, 20]. In addition, clinical data can be standardized across all patients in contact with a healthcare system and included in a database to feed and support clinical and population health research [2].

Conclusions

A DMIA system could enhance the primary care consultation and facilitate the management of diabetes and depression, and possibly other chronic conditions, which would hopefully make an impact in primary care. Earlier case finding and a more accurate diagnosis, due to more and better-quality data, paired with improved monitoring of disease progress, should improve the quality of care and keep the management of chronic conditions at the primary care level. A somewhat simple, easily scalable technology could go a long way to improve the health of the millions of people affected with chronic conditions (depending on the context and how successful its implementation is), especially if working in conjunction with already established health technologies such as EMRs and CDSS.

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Conflicts of Interest

None declared.

Box: Digital medical interview assistant questions for the cases of diabetes and depression

PRE-FIRST/INITIAL CONSULTATION QUESTIONS			
Patient	All patients		Improvements in PC consultation
General screening questions	How are your energy levels in these past 2 weeks? How well have you been sleeping these past 2 weeks? Have you been eating/drinking well? How often do you exercise? How many alcoholic drinks per week do you consume?		<ul style="list-style-type: none"> - Earlier detection and diagnosis of chronic condition - Improved use of consultation time (background and clinical information already filled out) - More streamlined discussion to focus on flagged issues - Opportunity for prompt referral if problems are out of the scope of PC or if there are urgent issues
Answers/ results	Sedentary, fatigue, excessive thirst → high risk diabetes	Trouble sleeping, poor appetite, high alcohol use → high risk mood disorder	
Patient	Potential diabetes patient	Potential mood disorder/depression patient	
Targeted screening questions	Do you have a history of: Family members with diabetes? Cardiovascular Disease? Hypertension? High cholesterol? Obesity? Gestational DM? Polycystic ovary syndrome?	Have you been experiencing changes in sleep, appetite, energy, concentration? Problems at home/work? Do you have a history of: psychosocial problems, past psychiatric conditions for you and/or family members?	
Answers/ results	Positive for high risk of diabetes	Positive for high risk of mood disorder	
Diagnosis questions	Have you had the following tests/results: Random plasma glucose concentration > 11.0 mmol/L, and/or fasting plasma glucose concentration >7.0 mmol/L, and/or oral failed glucose tolerance test	Have patient fill out a mini-mental state examination and/or ask “In the prior 2 weeks, have you felt down, depressed, or hopeless?” and “Have you noted a lack of interest or pleasure?”	
Answers/ results	If positive, possible diabetes diagnosis If dangerous, urgent care referral	If positive, possible depression diagnosis If dangerous, urgent care referral	
PRE-FOLLOW-UP CONSULTATION QUESTIONS			
Patient	Diabetes	Depression	Improvements in PC consultation
Control/ Monitoring general	Have you been eating healthy? Do you have healthy food options at home/work? How are your exercising patterns? Do you have available time/help at home to work out? Have you managed to lose weight?	How have you been feeling these past weeks? Have your energy/appetite/sleep levels improved? Have you managed to stop drinking alcohol? What does your family think of your condition? Have they been supportive/helpful?	<ul style="list-style-type: none"> - Better quality of data for improved monitoring - Easier to flag problematic areas so that these can be discussed in the consultation - Focus on education needed
Answers/ results	Adequate/problematic adaptation to lifestyle changes; adequate/problematic support at home/work to manage the condition → address issues accordingly	Adequate/problematic reestablishment of lifestyle/living conditions; adequate/problematic support at home/work to manage the condition → address issues accordingly	

Control/ Monitoring clinical	What have been your blood glucose levels in the past week (key in values)? Have you had any hypo/hyper events? If so, how often and when? Have you been sticking to the Metformin schedule we planned? Have there been problems with any of the above?	Has your mood improved/been stable this week? Have you been feeling more/less depressed in the past days? Have you been sticking to the antidepressant therapy schedule we planned? Have there been any problems with any of the above?	by the patient / review condition management strategies - Improved capacity for referral, if needed - Improved continuity and patient-doctor relationship
Answers/ results	Adequate/problematic management of diabetes → Focus on education for self-management, medication adherence strategies, additional support, etc.	Adequate/problematic progression of depression symptoms and/or medication management → Focus on issues that need attention	
Additional health issues	Have you been experiencing: lower back pain, difficulties urinating; pain in the legs, fatigue; foot problems, numbness/pain in hands or feet, stomach issues; vision problems?	Have you been experiencing additional and multiple health issues in various parts of your body? Have you lost interest in your usual sources of pleasure? Have you experienced suicidal thoughts or listened to voices in your head?	
Answers/ results	Identification of additional complications → treat and/or refer to a specialist accordingly	Identification of additional complications → treat and/or refer to a specialist accordingly	
Coordination questions	Were you able to see the podiatrist/ophthalmologist/ endocrinologist as we planned? Did they provide you with any information? Have you been referred for additional examinations or tests? Do you have and can you provide their results?	Have you been able to see the psychotherapist I recommended? How is that going? Have you been referred for additional examinations or tests? Do you have and can you provide their results?	
Answers/ results	- Relevant information from specialists/labs to be available for PC provider prior to the consultation - If answers to any of the above indicate crisis, a referral process to specialist/hospital can be started. If control has been ok, management of patient can be kept at PC level		

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